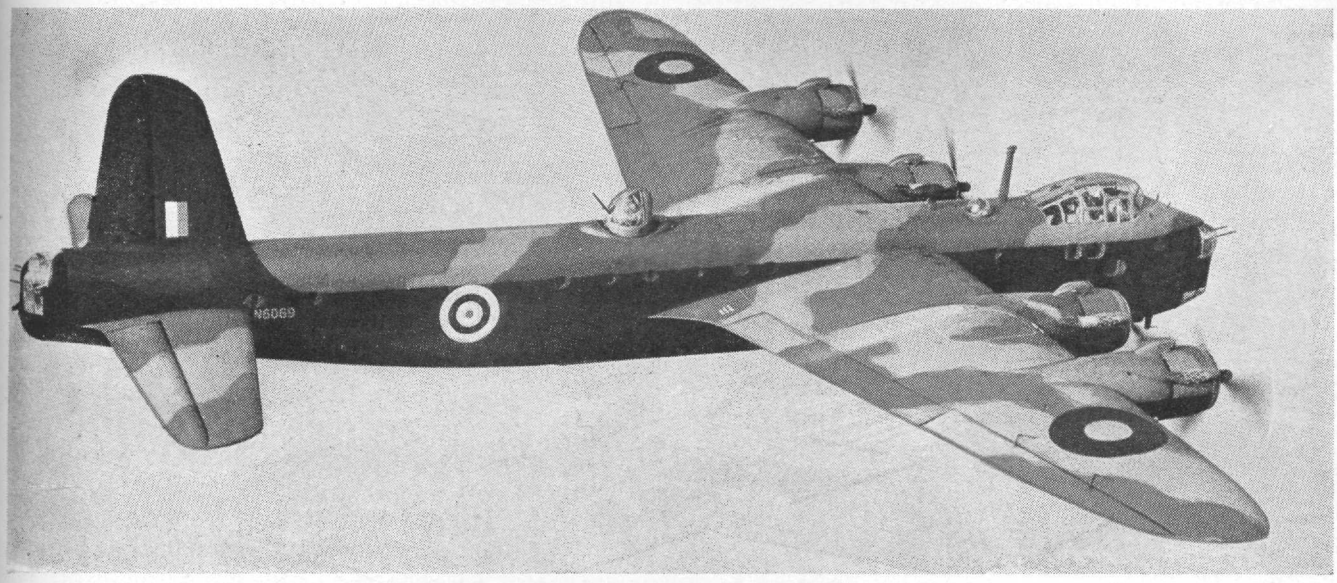

• The Short Stirling Bomber

Courtesy Flying Magazine

BRITAIN'S THREE HEAVIES

By
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The news was first released late in 1941 that two types of four-motored heavy bombers had begun paying almost nightly visits to the industrial centers of Germany, Italy, and the conquered countries. First to bomb enemy territory was the Short Stirling which went into action in the last week of February, 1941. Early in March the first squadrons of Handley Page Halifaxes went over Kiel and Le Havre. Since then, these heavy bombers have seen constant service, mostly in mass night raids on industrial areas where the two-ton "block-buster" bombs which they can carry in quantity, have a devastating effect. By July, 1942, a third member of Britain's family of "heavies" made its appearance in the skies over Europe. This was the four-motored Avro Lancaster — big brother of the already famous twin-motored Avro Manchester. Testimonial of the amount of damage these large bombers can do was revealed in the large scale raid that the R. A. F. and R. C. A. F. carried out on Berlin on the night of March 1, 1943. The tremendous bomb-load capacity of these aeroplanes enabled them to drop four-ton "block-busters," capable of destroying six-acre block, on the capital city of Germany. Only four-motored bombers participated in this raid.

Britain's three "heavies" shall be discussed in order of their appearance in the skies over Europe.

THE SHORT STIRLING

The oldest of Britain's family of heavy bombers now in use is the Short Stirling. It is the largest of the four-motored mammoths and has often been called "the ugly duckling" of the R. A. F. "Those with an eye at all sensitive to beauty have been known to exhibit a certain lack of enthusiasm for the appearance of the Short Stirling." The factors that have contributed to its ugliness and appearance of ferocity are the protruding cockpit which makes the bomber resemble some giant reptile, and the long square fuselage which Americans term "box-car construction," and which the British prefer to term "slab-sided construction." However, the Short Stirling was not designed for aeronautical beauty, but rather for ease of production and "to carry the greatest possible load of unpleasantness to the enemy in the shortest possible space of time and with the greatest possible degree of reliability." The bomb load capacity of the Stirling is approximately eight tons which it can carry at an average speed of about 225 m.p.h. for a 2000 mile cruising radius. The top speed of this bomber is approximately 300 m.p.h.

The all-metal fuselage of this bomber is 87 feet long, and the highest point of the aeroplane rises 23 feet above the ground. The Stirling's wings are set far back on the fuselage in such a position

as to classify the bomber as a mid-wing aeroplane. The relatively short wing span—99 feet, 1 inch — is compensated by the tremendous wing area — 1460 square feet. These relatively short, stubby wings add to the appearance of clumsiness of the Short Stirling bomber.

Power is supplied by four Bristol Hercules 14-cylinder radial engines of 1600 horse power each. These sleeve-valve engines are underslung. Four Wright Cyclone engines of the same power may be used in place of the Bristol Hercules engines.

The armament of the Short Stirling consists of two .303 inch machine guns in the nose and dorsal turrets, and four machine guns of the same caliber in the tail turret. All of the turrets are power operated.

A crew of seven is required to man all stations of the Stirling bomber.

THE HANDLEY PAGE HALIFAX

Because the necessities of war demanded a long range bomber which was easy to produce in quantity, and which carried an effective bomb load at a good rate of speed, the designers of the four-motored Handley Page Halifax turned out a bomber which had little to boast of in the way of beauty of design over its older brother, the Short Stirling. The slab-sided construction of its fuselage is typical of its family, but its lack of a protruding cockpit makes the Halifax resemble a box car more than either of its brothers do. The fuselage of this bomber is 70 feet in length, and its highest point rises to a height of 22 feet above the ground.

"The Halifax is proving itself to be one of Britain's most successful long-range bombers, having a maximum bomb load of 5½ tons, a maximum range of about 3000 miles, and a top speed of approximately 300 m.p.h." Due to the fact that the Halifax does not carry as great a bomb load as the Stirling, its wing area is 1350

(continued on page 26)

—Picture courtesy U. S. Army Air Forces; cut courtesy Westinghouse

• Consolidated B-24 Bomber.

Courtesy Flying Magazine

• The Avro Lancaster

BRITAIN'S THREE HEAVIES

(continued from page 10)

square feet — 210 square feet less than that of its older brother. However, its wing span — 99 feet — is almost exactly the same as that of the Stirling.

The armament of the Halifax consists of two Boulton-Paul electrically operated two-gun turrets — one in the nose and one amidships above the trailing edge of the wings; and one Boulton-Paul four-gun turret in the extreme tail of the fuselage. The guns are probably of .303 inch caliber.

It requires a crew of seven to man all stations of this mid-wing giant bomber. Pilots state that the Halifax is highly maneuverable and easy to fly. Power is supplied by 4 Rolls Royce Merlin XX liquid-cooled engines. These engines are 12-cylinder V models delivering 1175 horse power at 20,500 feet. The propellors used are Rotols with three blades that operate at a constant speed and may be fully feathered.

THE AVRO LANCASTER

The Avro Lancaster, designed by Roy R. Chadwick, one of Great Britain's foremost aircraft designers, is the latest addition to the family of Britain's "heavies." Resembling more closely the Short Stirling than the Halifax in design, the Avro Lancaster is considered "the fastest and deadliest bomber for size and bomb load in the world."

The Lancaster is 69½ feet long, and 20½ feet high, and is of all-metal construction. Like the Stirling, its fuselage is slab-sided, and its cockpit protrudes above the fuselage. It has a wing span of 102 feet and a wing area of 1300 square feet which are sufficient to carry its capacity bomb load of slightly more than 8 tons. Like its older brothers, it has a retracting undercarriage which folds into the inboard engines.

In the Avro Lancaster are combined the best points of both the Short Stirling and the Handley Page Halifax. The Lancaster combines the 8-ton bomb load capacity of the Stirling with the 3000 mile maximum range of the Halifax; and all this at a crusing speed greater than those of its predecessors. The maximum speed of the Lancaster is well over 300 m.p.h.

The Avro Lancaster has more armament than its brothers. It carries two Browning .303 machine guns in each of three smaller turrets — nose, dorsal, and ventral; and four Browning .303 machine guns in its tail turret. The added ventral turret protects the underside of the bomber's fuselage.

Each of its four Rolls Royce Merlin engines generates 1175 horse power at 20,500 feet. However, the qualities of an aircraft are not to be measured in sheer performance alone; controllability, freedom from vices, and the ability to fly with one or two engines out of action are at least as important. In that respect, too, the Lancaster has already proved its worth. It is on record that on one occasion one of these machines returned from the Baltic with both engines on one side out of action, and the airscrew blades of another badly bent so that the engine had to be throttled down in order to reduce vibration. The aircraft got back safely virtually on one-and-a-half engines, and both of these on the same side.

The crew of six of the Avro Lancaster includes the captain, second pilot, air observer (navigator, bomb aimer), 2 radio operator air gunners, and an air gunner. The interior of the Lancaster is much like those of the Halifax and Stirling. From nose to tail, it consists of the nose gunner above the prone bomb aimer, the cockpit, the navigator's cabin, the wireless operator's position, and the gun turrets. A gangway stretches from nose to tail along the starboard side of the plane.

Avro Lancasters are now being manufactured in large quantities in Canadian as well as British aircraft factories.

All three of the bombers discussed are essentially night bombers. They cannot fly as high nor generally as fast as the B-17E or the B-24 — the United States' two heavy bombers. They also lack the heavy armament that the American heavy bombers have been using with so much effectiveness. However, the combination of American heavy bombers by day and British heavy bombers by night is one that the Axis powers will never overcome and which will lead the way in the eventual invasion of Europe.

Courtesy Flying Magazine

• The Handley Page Halifax.